

WEST

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L5: Entry 11 of 13

File: USPT

Mar 26, 2002

DOCUMENT-IDENTIFIER: US 6361985 B1

TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

Brief Summary Text (3):

Galactosyltransferases promote the transfer of an activated galactose residue in UDP-galactose to the monosaccharide N-acetylglucosamine. This transfer is a step in the biosynthesis of the carbohydrate portion of galactose-containing glycoproteins, such as oligosaccharides and glycolipids, in animal tissues. One subgroup of the galactosyltransferases is the beta-1,3-galactosyltransferases, which are characterized by the elongation of type I oligosaccharide chains. Additionally, the beta-1,3-galactosyltransferases are found on glycoproteins and glycolipids, are important precursors of blood group antigens, and are present in soluble oligosaccharides of human milk. Similar to other members of galactosyltransferases, the beta-1,3-galactosyltransferases require a divalent cation (Mn.sup.2+) to function. The beta-1,3-galactosyltransferases seem to have restricted tissue distributions.

Brief Summary Text (30):

The term "affinity tag" is used herein to denote a polypeptide segment that can be attached to a second polypeptide to provide for purification of the second polypeptide or provide sites for attachment of the second polypeptide to a substrate. In principal, any peptide or protein for which an antibody or other specific binding agent is available can be used as an affinity tag. Affinity tags include a poly-histidine tract, protein A (Nilsson et al., EMBO J. 4:1075, 1985; Nilsson et al., Methods Enzymol. 198:3, 1991), glutathione S transferase (Smith and Johnson, Gene 67:31, 1988), Glu-Glu affinity tag (Grussenmeyer et al., Proc. Natl. Acad. Sci. USA 82:7952-4, 1985), substance P, Flag.TM. peptide (Hopp et al., Biotechnology 6:1204-1210, 1988), streptavidin binding peptide, maltose binding protein (Guan et al., Gene 67:21-30, 1987), cellulose binding protein, thioredoxin, ubiquitin, T7 polymerase, or other antigenic epitope or binding domain. See, in general, Ford et al., Protein Expression and Purification 2: 95-107, 1991. DNAs encoding affinity tags and other reagents are available from commercial suppliers (e.g., Pharmacia Biotech, Piscataway, N.J.; New England Biolabs, Beverly, Mass.; Eastman Kodak, New Haven, Conn.).

Brief Summary Text (54):

The present invention is based upon the discovery of a novel cDNA sequence (SEQ ID NO:1) and corresponding polypeptide (SEQ ID NO:2) having homology to a family of proteins, the beta-1,3-galactosyltransferases. The beta-1,3-galactosyltransferases are part of the galactosyltransferases, which in turn, belong in the category of glycosyltransferases. The beta-1,3-galactosyltransferase family includes HSY15014 (Kolbinger, F. et al., Journal of Biol. Chem. 273: 433-440, 1998), HSGALT3, HSGALT4, (Amado, M. et al., *ibid*), E07739 (Katsutoshi, S. et al., Japanese patent, JP 1994181759-A/1), and Cardiac and Pancreatic Peptide (Human Genome Sciences, Inc., WO 98/44112). Enzymes in this category are responsible for transferring galactose to carbohydrate chains during biosynthesis. It has been predicted that the beta-1,3-galactosyltransferase family members are in the alpha/beta barrel (TIM barrel) folding class of enzymes, similar to other glycosyltransferases such as the alpha-amylases and beta-glycanases (Yuan, Y. et al., Cell 88:9-11, 1997). Another member of the beta-1,3-galactosyltransferase family is the Drosophila melanogaster locus Brainiac (brn) (Goode, S. et al., Devel. Biol. 178:35-50, 1996), also known as "putative neurogenic secreted signaling protein" or NSSP. Brn is required for epithelial development (Goode, *ibid*). This activity may be due to possible cell interactions between the membrane bound glycosyltransferase and oligosaccharide substrates on adjacent cell surfaces (Shur, *ibid*). The beta-1,3-galactosyltransferases family members are also known as neurogenic secreted signal peptides. See, for example, Shur, B. D., *ibid*, and Amado, M. et al., *ibid*.

Brief Summary Text (118):

To direct the export of a znssp6 polypeptide from the host cell, the znssp6 DNA is linked to a second DNA segment encoding a secretory peptide, such as a t-PA secretory peptide or a znssp6 secretory peptide. To facilitate purification of the secreted znssp6 polypeptide, a C-terminal extension, such as a poly-histidine tag, substance P, Flag peptide (Hopp et al., Bio/Technology 6:1204-1210, 1988; available from Eastman Kodak Co., New Haven, Conn.) or another polypeptide or protein for which an antibody or other specific binding agent is available, can be fused to the znssp6 polypeptide.

Brief Summary Text (119):

Moreover, using methods described in the art, polypeptide fusions, or hybrid znssp6 proteins, are constructed using regions or domains of the inventive znssp6 in combination with those of other human galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, .beta.3 Gal-T2, and .beta.3Gal-T3, or human homologs to the human ortholog of Brainiac), or heterologous proteins (Sambrook et al., *ibid.*, Altschul et al., *ibid.*, Picard, *Cur. Opin. Biology*, 5:511-5, 1994, and references therein). These methods allow the determination of the biological importance of larger domains or regions in a polypeptide of interest. Such hybrids may alter reaction kinetics, binding, constrict or expand the anti-complementary molecule specificity, or alter tissue and cellular localization of a polypeptide, and can be applied to polypeptides of unknown structure.

Brief Summary Text (120):

Fusion proteins can be prepared by methods known to those skilled in the art by preparing each component of the fusion protein and chemically conjugating them. Alternatively, a polynucleotide encoding both components of the fusion protein in the proper reading frame can be generated using known techniques and expressed by the methods described herein. For example, part or all of a domain(s) conferring a biological function may be swapped between znssp6 of the present invention with the functionally equivalent domain(s) from another family member, such as the human species ortholog of Brainiac, or other galactosyltransferases, etc. Such domains include, but are not limited to, the hydrophobic region thought to be a putative secretory signal sequence or transmembrane domain (residues 26 to 49 of SEQ ID NO:2), the stem or linker domain (residues 50 to 113 of SEQ ID NO:2), and other conserved motifs such as the beta-1,3-galactosyltransferase homology region (residues 114 to 378 of SEQ ID NO:2), and significant domains or regions in this family. Such fusion proteins would be expected to have a biological functional profile that is the same or similar to polypeptides of the present invention or other known galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, and Brainiac), depending on the fusion constructed. Moreover, such fusion proteins may exhibit other properties as disclosed herein.

Other Reference Publication (2):

Zhou et al. Molecular cloning of a human UDP-galactose:GlcNAc beta1,3GalNAc beta1,3 galactosyltransferase gene encoding an O-linked core3 elongation enzyme. *Eur J of Biochemistry* 263(2):571-576, Jul. 1999.*

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 13 of 13 returned.**☐ 1. Document ID: US 20020119517 A1

L5: Entry 1 of 13

File: PGPB

Aug 29, 2002

PGPUB-DOCUMENT-NUMBER: 20020119517
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020119517 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: August 29, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---------------------|---------------|-------|---------|---------|
| White, David | Holbrook | MA | US | |
| Zhou, Jianghong | Chestnut Hill | MA | US | |
| Tartaglia, Louis A. | Newton | MA | US | |

US-CL-CURRENT: [435/69.1](#); [435/320.1](#), [435/325](#), [530/350](#), [536/23.5](#)

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|----------------------|-----------------------|--------------------------|-----------------------|------------------------|--------------------------------|----------------------|---------------------------|---------------------------|-----------------------------|------------------------|---------------------|---------------------------|-----------------------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Desc | Image |
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☐ 2. Document ID: US 20020115839 A1

L5: Entry 2 of 13

File: PGPB

Aug 22, 2002

PGPUB-DOCUMENT-NUMBER: 20020115839
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020115839 A1

TITLE: 8797, a novel human galactosyltransferase and uses thereof

PUBLICATION-DATE: August 22, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|-----------------|--------|-------|---------|---------|
| Meyers, Rachel | Newton | MA | US | |
| MacBeth, Kyle | Boston | MA | US | |
| Tsai, Fong-Ying | Newton | MA | US | |

US-CL-CURRENT: [536/23.1](#)

| | | | | | | | | | | | | | |
|----------------------|-----------------------|--------------------------|-----------------------|------------------------|--------------------------------|----------------------|---------------------------|---------------------------|-----------------------------|------------------------|---------------------|---------------------------|-----------------------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Desc | Image |
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☐ 3. Document ID: US 20020107376 A1

L5: Entry 3 of 13

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020107376
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020107376 A1

TITLE: 26199, 33530, 33949, 47148, 50226, and 58764, novel human transferase family members and uses therefor

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|----------------|--------|-------|---------|---------|
| Meyers, Rachel | Newton | MA | US | |
| MacBeth, Kyle | Boston | MA | US | |

US-CL-CURRENT: [536/23.2](#); [435/193](#), [435/320.1](#), [435/325](#), [435/6](#), [435/69.1](#), [435/7.23](#)

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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4. Document ID: US 20020098564 A1

L5: Entry 4 of 13

File: PGPB

Jul 25, 2002

PGPUB-DOCUMENT-NUMBER: 20020098564
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020098564 A1

TITLE: Human beta-1,3-galactosyltransferase

PUBLICATION-DATE: July 25, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---------------------|---------|-------|---------|---------|
| Conklin, Darrell C. | Seattle | WA | US | |
| Yamamoto, Gayle | Seattle | WA | US | |
| Gao, Zeren | Redmond | WA | US | |
| Jaspers, Stephen R. | Edmonds | WA | US | |

US-CL-CURRENT: [435/193](#); [435/320.1](#), [435/325](#), [435/69.1](#), [536/23.2](#)

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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5. Document ID: US 20020082194 A1

L5: Entry 5 of 13

File: PGPB

Jun 27, 2002

PGPUB-DOCUMENT-NUMBER: 20020082194
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020082194 A1

TITLE: Isolated human drug-metabolizing proteins, nucleic acid molecules encoding human drug-metabolizing proteins, and uses thereof

PUBLICATION-DATE: June 27, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|-------------------------|---------------|-------|---------|---------|
| Guegler, Karl | Menlo Park | CA | US | |
| Webster, Marion | San Francisco | CA | US | |
| Yan, Chunhua | Boyd | MD | US | |
| Di Francesco, Valentina | Rockville | MD | US | |
| Beasley, Ellen M. | Darnestown | MD | US | |

US-CL-CURRENT: [514/2](#); [435/183](#), [435/325](#), [435/6](#), [435/69.1](#), [536/23.2](#), [800/8](#)

| | | | | | | | | | | | | | |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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6. Document ID: US 20020052308 A1

L5: Entry 6 of 13

File: PGPB

May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020052308
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020052308 A1

TITLE: Nucleic acids, proteins and antibodies

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|------------------|--------------|-------|---------|---------|
| Rosen, Craig A. | Laytonsville | MD | US | |
| Ruben, Steven M. | Olney | MD | US | |

US-CL-CURRENT: [514/1](#); [435/183](#), [435/320.1](#), [435/325](#), [435/6](#), [435/69.1](#), [435/7.1](#), [530/350](#), [536/23.1](#)

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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7. Document ID: US 20020037850 A1

L5: Entry 7 of 13

File: PGPB

Mar 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020037850
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020037850 A1

TITLE: Novel polypeptides and nucleic acids encoding same

PUBLICATION-DATE: March 28, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|-------------------------|----------------|-------|---------|---------|
| Vernet, Corine A. M. | North Branford | CT | US | |
| Shimkets, Richard A. | West Haven | CT | US | |
| Rastelli, Luca | Guilford | CT | US | |
| Burgess, Catherine E. | Wethersfield | CT | US | |
| Taupier, Raymond J. JR. | East Haven | CT | US | |

US-CL-CURRENT: [514/12](#); [435/183](#), [435/325](#), [435/69.1](#), [436/6](#), [536/23.2](#)

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KIMC | Draw Desc | Image |
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8. Document ID: US 20020019049 A1

L5: Entry 8 of 13

File: PGPB

Feb 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020019049

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020019049 A1

TITLE: Methods for enhancing the expression of a protein of interest by recombinant host cells

PUBLICATION-DATE: February 14, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---------|---------|-------|---------|---------|
| Lok, Si | Seattle | WA | US | |

US-CL-CURRENT: 435/455; 435/320.1, 435/91.1

| | | | | | | | | | | | | | |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KIMC | Draw Desc | Image |
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9. Document ID: US 20010024808 A1

L5: Entry 9 of 13

File: PGPB

Sep 27, 2001

PGPUB-DOCUMENT-NUMBER: 20010024808

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010024808 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: September 27, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---------------------|---------------|-------|---------|---------|
| White, David | Holbrook | MA | US | |
| Zhou, Jianghong | Chestnut Hill | MA | US | |
| Tartaglia, Louis A. | Watertown | MA | US | |

US-CL-CURRENT: 435/69.1; 435/325, 435/6, 435/7.2, 530/350, 536/23.5

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KIMC | Draw Desc | Image |
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10. Document ID: US 6416988 B1

L5: Entry 10 of 13

File: USPT

Jul 9, 2002

US-PAT-NO: 6416988

DOCUMENT-IDENTIFIER: US 6416988 B1

TITLE: Beta-1,3-galactosyltransferase homologs

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KIMC | Draw Desc | Image |
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11. Document ID: US 6361985 B1

L5: Entry 11 of 13

File: USPT

Mar 26, 2002

US-PAT-NO: 6361985

DOCUMENT-IDENTIFIER: US 6361985 B1

TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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12. Document ID: US 6077673 A

L5: Entry 12 of 13

File: USPT

Jun 20, 2000

US-PAT-NO: 6077673

DOCUMENT-IDENTIFIER: US 6077673 A

TITLE: Mouse arrays and kits comprising the same

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|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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13. Document ID: US 6025194 A

L5: Entry 13 of 13

File: USPT

Feb 15, 2000

US-PAT-NO: 6025194

DOCUMENT-IDENTIFIER: US 6025194 A

TITLE: Nucleic acid sequence of senescence associated gene

| | | | | | | | | | | | | | |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |
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Terms

Documents

L2 and (binding agent)

13

Display Format: -

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|------------------------|-----------|
| L2 and (binding agent) | 13 |

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US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index

Database: IBM Technical Disclosure Bulletins

Search:

L5

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[Clear](#)**Search History**DATE: Monday, October 21, 2002 [Printable Copy](#) [Create Case](#)

Set Name Query
side by side

Hit Count Set Name
result set

DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ

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|-----------|---|-----|-----------|
| <u>L5</u> | L2 and (binding agent) | 13 | <u>L5</u> |
| <u>L4</u> | L2 and (1,3-N-acetylglucosaminyl transferase) | 0 | <u>L4</u> |
| <u>L3</u> | L2 and (1,3-N-acetylglucosaminyl transferase or beta 3 Gn-T5) | 0 | <u>L3</u> |
| <u>L2</u> | L1 same human | 184 | <u>L2</u> |
| <u>L1</u> | galactosyltransferase | 462 | <u>L1</u> |

END OF SEARCH HISTORY

=> d his

(FILE 'HOME' ENTERED AT 08:42:06 ON 21 OCT 2002)

INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO,
CABA,
CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB,
DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 08:42:22 ON
21 OCT 2002

SEA GALACTOSYLTRANSFERASE

13 FILE ADISALERTS
1 FILE ADISNEWS
166 FILE AGRICOLA
28 FILE ANABSTR
18 FILE AQUASCI
13 FILE BIOBUSINESS
4 FILE BIOCOMMERCE
2482 FILE BIOSIS
211 FILE BIOTECHABS
211 FILE BIOTECHDS
1042 FILE BIOTECHNO
441 FILE CABA
653 FILE CANCERLIT
3157 FILE CAPLUS
31 FILE CEABA-VTB
2 FILE CEN
6 FILE CIN
106 FILE CONFSCI
2 FILE CROPU
57 FILE DDFB
40 FILE DDFU
660 FILE DGENE
57 FILE DRUGB
49 FILE DRUGU
20 FILE EMBAL
2099 FILE EMBASE
655 FILE ESBIODASE
47 FILE FEDRIP
4 FILE FROSTI
38 FILE FSTA
1702 FILE GENBANK
93 FILE IFIPAT
327 FILE JICST-EPLUS
588 FILE LIFESCI
2712 FILE MEDLINE
5 FILE NIOSHTIC
3 FILE NTIS
1 FILE OCEAN
668 FILE PASCAL
2 FILE PHIN
19 FILE PROMT
2156 FILE SCISEARCH
633 FILE TOXCENTER
338 FILE USPATFULL
2 FILE USPAT2
2 FILE VETB

3 FILE VETU
83 FILE PIDS
83 FILE .PINDEX
L1 QUE GALACTOSYLTRANSFERASE

FILE 'CAPLUS, BIOSIS, MEDLINE, SCISEARCH, EMBASE, BIOTECHNO' ENTERED AT
08:45:08 ON 21 OCT 2002

L2 4762 S L1 AND HUMAN
L3 10 S L2 AND (1,3-N-ACETYLGLUCOSAMINYL TRANSFERASE) OR (BETA
3GN-T5
L4 5 DUP REM L3 (5 DUPLICATES REMOVED)
L5 0 S L2 AND (BIND? AGENT)

=> d 14 ibib ab 1-5

L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
ACCESSION NUMBER: 2001:482456 CAPLUS
DOCUMENT NUMBER: 136:129751
TITLE: Molecular cloning and characterization of
UDP-GlcNAc:lactosylceramide .beta.1,3-N-
acetylglucosaminyltransferase (**.beta.**
3Gn-T5), an essential enzyme for the
expression of HNK-1 and Lewis X epitopes on
glycolipids
AUTHOR(S): Togayachi, Akira; Akashima, Tomohiro; Ookubo, Reiko;
Kudo, Takashi; Nishihara, Shoko; Iwasaki, Hiroko;
Natsume, Ayumi; Mio, Hiroyuki; Inokuchi, Jin-Ichi;
Irimura, Tatsuro; Sasaki, Katsutoshi; Narimatsu,
Hisashi
CORPORATE SOURCE: Division of Cell Biology, Institute of Life Science,
Soka University, Tokyo, 192-8577, Japan
SOURCE: Journal of Biological Chemistry (2001), 276(25),
22032-22040
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular
Biology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new member of the UDP-N-acetylglucosamine:.beta.-galactose
.beta.1,3-N-acetylglucosaminyltransferase (**.beta.3Gn-T**) family having the
.beta.3Gn-T motifs was cloned from rat and human cDNA libraries and named
.beta.3Gn-T5 based on its position in a
phylogenetic tree. We concluded that **.beta.3Gn-**
T5 is the most feasible candidate for lactotriaosylceramide
(Lc3Cer) synthase, an important enzyme which plays a key role in the
synthesis of lacto- or neolacto-series carbohydrate chains on
glycolipids.
.beta.3Gn-T5 exhibited strong activity to
transfer GlcNAc to glycolipid substrates, such as lactosylceramide
(LacCer) and neolactotetraosylceramide (nLc4Cer; paragloboside),
resulting
in the synthesis of Lc3Cer and neolactopentaosylceramide (nLc5Cer), resp.
A marked decrease in LacCer and increase in nLc4Cer was detected in
Namalwa cells stably expressing **.beta.3Gn-T5**
. This indicated that **.beta.3Gn-T5** exerted
activity to synthesize Lc3Cer and decrease LacCer, followed by conversion
to nLc4Cer via endogenous galactosylation. The following four findings
further supported that **.beta.3Gn-T5** is
Lc3Cer synthase. The **.beta.3Gn-T5**
transcript levels in various cells were consistent with the activity
levels of Lc3Cer synthase in those cells. The **.beta.3Gn**
-T5 transcript was presented in various tissues and cultured
cells. The **.beta.3Gn-T5** expression was
up-regulated by stimulation with retinoic acid and down-regulated with
12-O-tetradecanoylphorbol-13-acetate in HL-60 cells. The changes in **.**
beta.3Gn-T5 transcript levels during the rat
brain development were detd. Points 2, 3, and 4 were consistent with the
Lc3Cer synthase activity reported previously.
REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR
THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
 ACCESSION NUMBER: 2001:867515 CAPLUS
 DOCUMENT NUMBER: 136:132636
 TITLE: A novel member of the glycosyltransferase family,
 .beta.3Gn-T2, highly downregulated in invasive
human bladder transitional cell carcinomas
 AUTHOR(S): Gromova, Irina; Gromov, Pavel; Celis, Julio E.
 CORPORATE SOURCE: Institute of Cancer Biology, Danish Cancer Society,
 Copenhagen, 2100, Den.
 SOURCE: Molecular Carcinogenesis (2001), 32(2), 61-72
 CODEN: MOCAE8; ISSN: 0899-1987
 PUBLISHER: Wiley-Liss, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Differential display reverse transcription (DDRT)-polymerase chain
 reaction (PCR) was used to compare the transcriptomes of invasive and
 noninvasive fresh **human** bladder transitional cell carcinomas. A
 differentially expressed novel gene sharing structural similarity with
 the
human .beta.3-galactosyltransferase family, .beta.-
1,3-N-acetylglucosaminyl-
transferase-T2 (.beta.3Gn-T2), was identified. The full-length
 .beta.3Gn-T2 cDNA, contg. a complete open reading frame of 1193 bp, was
 cloned and sequenced. .beta.3Gn-T2 exhibited 29-41% homol. to the
 multigene .beta.3-galactosyl-transferase family. Expression of the
 full-length .beta.3Gn-T2 cDNA in an in vitro coupled
 transcription/translation assay yielded a primary translation product
 with
 an apparent Mr of 46 kDa, which is in agreement with the predicted
 397-amino-acid protein encoded by .beta.3Gn-T2. Multiple peptide
 alignment showed several sequence motifs corresponding to putative
 catalytic domains that are conserved throughout all members of the
 .beta.3-**galactosyltransferase** family, namely, a type II
 transmembrane domain, a conserved D.times.D motif, an N-glycosylation
 site, and five conserved cysteines. By RT-PCR strong downregulation of
 .beta.3Gn-T2 expression was noted in invasive **human** bladder
 transitional cell carcinomas (16 fresh biopsy samples: grade III, T2-T4)
 compared with their noninvasive counterparts (15 fresh biopsies: grade
 II,
 Ta), suggesting that .beta.3Gn-T2 may be involved in cancer progression.
 REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR
 THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L4 ANSWER 3 OF 5 SCISEARCH COPYRIGHT 2002 ISI (R)
 ACCESSION NUMBER: 1999:284076 SCISEARCH
 THE GENUINE ARTICLE: 183VR
 TITLE: Enzymatic synthesis of natural and C-13 enriched linear
 poly-N-acetyllactosamines as ligands for galectin-1
 AUTHOR: DiVirgilio S; Glushka J; Moremen K; Pierce M (Reprint)
 CORPORATE SOURCE: UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS, GA 30602
 (Reprint); UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS,
 GA 30602; UNIV GEORGIA, COMPLEX CARBOHYDRATE RES CTR,
 ATHENS, GA 30602
 COUNTRY OF AUTHOR: USA
 SOURCE: GLYCOBIOLOGY, (APR 1999) Vol. 9, No. 4, pp. 353-364.
 Publisher: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD
 OX2 6DP, ENGLAND.
 ISSN: 0959-6658.
 DOCUMENT TYPE: Article; Journal
 FILE SEGMENT: LIFE
 LANGUAGE: English
 REFERENCE COUNT: 57
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB As part of a study of protein-carbohydrate interactions, linear N-acetyl-polyllactamines [Gal beta 1,4GlcNAc beta 1,3](n) were synthesized at the 10-100 mu mol scale using enzymatic methods. The methods described also provided specifically [1-C-13]galactose-labeled tetra- and hexasaccharides ([1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc and Gal beta 1,4GlcNAc beta 1,3[1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc) suitable for NMR studies. Two series of oligosaccharides were produced, with either glucose or N-acetylglucosamine at the reducing end. In both cases, large amounts of starting primer were available from human milk oligosaccharides (trisaccharide primer GlcNAc beta 1,3Gal beta 1,4Glc) or via transglycosylation from N-acetylglucosamine, Partially purified and immobilized glycosyltransferases, such as bovine milk beta 1,4 galactosyltransferase and human serum beta 1,3 N-acetylglucosaminyl-transferase, were used for the synthesis. All the oligosaccharide products were characterized by H-1 and C-13 NMR spectroscopy and MALDI-TOF mass spectrometry. The target molecules were then used to study their interactions with recombinant galectin-1, and initial H-1 NMR spectroscopic results are presented to illustrate this approach. These results indicate that, for oligomers containing up to eight sugars, the principal interaction of the binding site of galectin-1 is with the terminal N-acetylglucosamine residues.

L4 ANSWER 4 OF 5 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
 ACCESSION NUMBER: 94218558 EMBASE
 DOCUMENT NUMBER: 1994218558
 TITLE: Two different glycosyltransferase defects that result in GalNAc.alpha.-O- peptide (Tn) expression.
 AUTHOR: King M.-J.; Chan A.; Roe R.; Warren B.F.; Dell A.; Morris H.R.; Bartolo D.C.C.; Durdey P.; Corfield A.P.
 CORPORATE SOURCE: Department of Medicine Laboratories, Bristol Royal Infirmary, Bristol BS2 8HW, United Kingdom
 SOURCE: Glycobiology, (1994) 4/3 (267-279).
 ISSN: 0959-6658 CODEN: GLYCE3
 COUNTRY: United Kingdom
 DOCUMENT TYPE: Journal; Article
 FILE SEGMENT: 016 Cancer
 026 Immunology, Serology and Transplantation
 029 Clinical Biochemistry
 LANGUAGE: English
 SUMMARY LANGUAGE: English
 AB This study shows for the first time that different glycosyl-transferase defects in the biosynthesis of O-linked oligosaccharides give rise to the same GalNAc.alpha.-O-Ser/Thr determinant on Tn erythrocytes and colorectal carcinoma cells. The O-linked oligosaccharides isolated from the glycoproteins of Tn erythrocytes contained predominantly .alpha.-N-acetylgalactosamine-O- Ser/Thr (Tn antigen) and sialyl-Tn. A marked reduction in normal sialylated oligosaccharides was also observed. Monoclonal antibody BRIC 111 raised against Tn erythrocytes reacted with both Tn erythrocytes and colorectal carcinoma tissues. Weak staining was detected in the supranuclear area and at the surface membranes in normal colorectal cells, but was absent from goblet cell vesicles. An increase in supranuclear staining over controls was found in tumour tissue and in the majority of resection margin specimens. The highest levels of staining were present in transitional mucosa, adjacent to the tumours where goblet vesicles were also positive. Glycosylation defects in the same patients were further studied by determination of the activity of glycosyltransferases in mucosal tissue from control and cancer patients. The reduction in or loss of .beta.1-3 N-acetylglucosaminyl transferase activity to GalNAc-peptide in asialo-ovine submaxillary gland glycoprotein was detected by direct assay and by isolation of the oligosaccharides from the

incubation products. No differences in N-acetylglucosaminyl-, galactosyl- or sialyl- transferase to Gal.beta.1-3GalNAc in antifreeze glycoprotein or in sialyl transferase to asialo-ovine submaxillary gland glycoprotein were detected. Our study shows that the GalNAc.alpha.-O-Ser/Thr determinant on Tn erythrocytes and in colorectal carcinoma results from different glycosyltransferase defects in separate biosynthetic pathways for haematopoietic and epithelial tissues.

L4 ANSWER 5 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1984:209710 BIOSIS
DOCUMENT NUMBER: BA77:42694
TITLE: UDP N ACETYL GLUCOSAMINE GALACTOSYL-BETA-1-4-N-
ACETYLGLUCOSAMINYL-BETA-1-3-N
-ACETYLGLUCOSAMINYL TRANSFERASE
IDENTIFICATION AND CHARACTERIZATION IN HUMAN
SERUM.
AUTHOR(S): PILLER F; CARTRON J-P
CORPORATE SOURCE: INST. NATL. SANTE RECHERCHE MEDICALE U76, CENTRE NATIONAL
TRANSFUSION SANGUINE, 6, RUE ALEXANDRE CABANEL, 75015
PARIS, FR.
SOURCE: J BIOL CHEM, (1983) 258 (20), 12293-12299.
CODEN: JBCHA3. ISSN: 0021-9258.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB A .beta.1-3-N-Acetylglucosaminyltransferase was detected in human serum which transfers N-acetylglucosamine residues from UDP-GlcNAc to terminal Gal.beta.1-4Glc(NAc) structures in oligosaccharides, glycoproteins, glycolipids and proteoglycans. The product of the transferase reaction with lactose as acceptor was identified by methylation analysis and mass spectrometry as GlcNAc.beta.1-3Gal.beta.1-4Glc. The .beta.-linkage of the GlcNAc in the synthesized trisaccharide was confirmed by the action of the specific enzymes .beta.-hexosaminidase and .beta.-N-acetylglucosaminidase .beta.1-4-galactosyltransferase. Kinetic parameters were determined for UDP-GlcNAc, lactose and N-acetylglucosamine. The enzyme requires Mn²⁺ ions for maximal activity and shows a pH optimum between 6 and 8. Using a wide variety of synthetic and natural oligosaccharides, the substrate specificity of the .beta.1-3N-acetylglucosaminyltransferase was investigated. The enzyme recognized specifically the free terminal structure Gal.beta.1-4Glc(NAc). The substrate specificity was equally stringent for glycoconjugates.
Among the glycoproteins and glycolipids tested as acceptors, N-acetylglucosamine was incorporated only into those containing free terminal Gal.beta.1-4Glc(NAc) structures. When the terminal galactose residues were partially removed, the transfer of N-acetylglucosamine was strongly reduced.